

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number  
**WO 2005/012561 A1**

(51) International Patent Classification<sup>7</sup>: **C12Q 1/68,**  
G01N 33/50

District, Beijing 100084 (CN). **WANG, Dong** [CN/CN];  
Tsinghua University, HaiDian District, Beijing 100084  
(CN).

(21) International Application Number:  
PCT/CN2003/000667

(74) Agent: **JEEKAI & PARTNERS**; Suite 602, Jinyu Tower,  
A129 West Xuan Wu Men Street, XiCheng District, Beijing  
100031 (CN).

(22) International Filing Date: 13 August 2003 (13.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03150086.2 1 August 2003 (01.08.2003) CN

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(71) Applicants (*for all designated States except US*): **CAP-  
ITAL BIOCHIP COMPANY LTD.** [CN/CN]; Jia No2,  
Qinghua West Road, HaiDian District, Beijing 100084  
(CN). **TSINGHUA UNIVERSITY** [CN/CN]; Tsinghua  
University, HaiDian District, Beijing 100084 (CN).

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

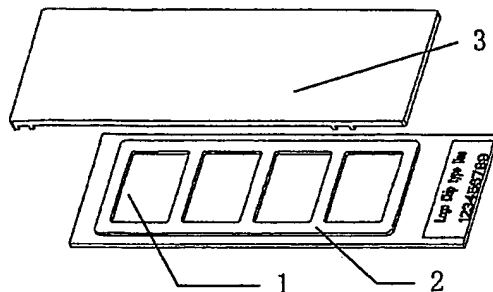
(75) Inventors/Applicants (*for US only*): **XIAN, Feijun**  
[CN/CN]; Tsinghua University, HaiDian District, Beijing  
100084 (CN). **XING, Wanli** [CN/CN]; Tsinghua Univer-  
sity, HaiDian District, Beijing 100084 (CN). **CHENG,  
Jing** [CN/CN]; Tsinghua University, HaiDian District,  
Beijing 100084 (CN). **LIANG, Dong** [CN/CN]; Tsinghua  
University, HaiDian District, Beijing 100084 (CN).  
**ZHANG, Liang** [CN/CN]; Tsinghua University, HaiDian

Published:

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: MICROARRAY DEVICES HAVING CONTROLLABLE REACTION VOLUME



(57) Abstract: This invention relates generally to the field of microarray chips and uses thereof. In particular, the invention provides a microarray reaction device that can be used in assaying the interaction between various moieties, *e.g.*, nucleic acids, immunoreactions involving proteins, interactions between a protein and a nucleic acid, a ligand-receptor interaction, and small molecule and protein or nucleic acid interactions, etc. Articles of manufacture and kits comprising the microarray reaction device and assaying methods using the microarray reaction device are also provided.